

The background of the entire page is a soft-focus, light-colored image of tall grasses or reeds, creating a natural and green aesthetic.

BULGANA

GREEN POWER HUB

Construction Update

ISSUE N°9

January 2019

Terminology:

The scope of works includes 220kV Terminal Station and Interface, 33kV Substation, 15km overhead 33kV line, two (2) 220 /33kV TXs, Battery Energy Storage System (BESS) as well as fifty-six (56) WTGs configured in four (4) Collector Groups (CGs).

CG 1: BU 1, 2, 3, 4, 5, 6, 7, 8, 9, 10 & 11;

CG 2: BU 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 23, 25 & 26

CG3: BU 29, 30, 31, 32, 33, 34, 35, 36, 37, 49, 50, 51, 52 & 53

CG4: BU 40, 41, 42, 43, 44, 54, 55, 56, 57, 58, 59, 61, 62, 63, 64, 65, 66 & 67

The Project is also split into groups of activities:

Terminal Station and Interface Including civil and electrical installation

CBoP (Civil Balance of Plant) including internal roads, Crane Hardstand areas and foundations

EBoP (Electrical Balance of Plant) including all electrical works to be prepared before WTGs can be energized (Cable trenches, Substation electrical installation, earthing circuits, etc.) and the Battery Energy Storage System (BESS)

Wind Turbine Generators (WTG) including shipping, transport to site, installation and commissioning.

Civil & Electrical Balance of Plant works are in progress on site. WTG components and towers manufacture are in progress. The first delivery of blades and towers has arrived on site and installation started.

Progress detail

Terminal Station and Interface

- 33kV OHL foundation construction completed.
- Approximately 50% of poles erected. Stringing commenced.
- Installation of switchyard equipment nearing completion.
- Station bus works installation commenced.
- Protection and Control testing underway.

Civil & Structural Balance of Plant (CBoP) Activities (overall 89% complete)

- | | |
|-------------------------|---------------|
| — WTG foundations | 92% complete |
| — Backfill & grout | 67% complete |
| — Internal Roads | 100% complete |
| — Crane hardstand areas | 88% complete |
| — O&M Building | 29% complete |

Electrical & SCADA Balance of Plant (EBoP) Activities (overall 29% complete)

- | | |
|---|--------------|
| — 33kV Cable delivery & installation in progress | 49% complete |
| — Control Room construction (on site) in progress | 51% complete |
| — BESS manufacture in progress | |
| — Harmonic Filters manufacture in progress | |

Wind Turbine Generator (WTG) Activities: (overall manufacturing 70% and overall shipping 30% complete)

- Power Curve Verification (PCV) data collection complete
- Manufacturing Status (70% complete):
 - Tower (sets) 34/56
 - Nacelles 41/56
 - Drive trains 52/56
 - Hubs 39/56
 - Blade (sets) 44/56
 - Elevators 56/56
 - Switchgear 56/56
- Shipping Status (50% complete)
- Delivery, Installation, Commissioning & Testing (1.2% complete):
 - Delivery 2/56
 - Pre-Assembly 3/56
 - Final Assembly 0/56
 - Mechanical 0/56

223,989

Hours worked on site

116

People on average on site

Figure 1 – Control Room Protection Panels Commissioning at Substation



Figure 2 – Pre-Installation at BU01 & BU01 in Collector Group 1



Figure 3 – Overhead Gantry Works at Substation



Figure 4 – WTG Component Deliveries

